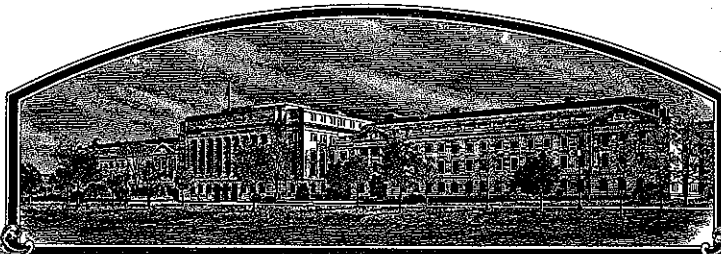


No.

200800130



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Kansas State University Research Foundation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Fuller'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this sixteenth day of July, in the year two thousand and eight.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.


Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER KS AG EXPERIMENT STATION KANSAS STATE UNIVERSITY RESEARCH FOUNDATION		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME KS00F5-14-7	3. VARIETY NAME FULLER
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) WATERS HALL KANSAS STATE UNIVERSITY MANHATTAN, KS 66506		5. TELEPHONE (include area code) 785-532-6147	FOR OFFICIAL USE ONLY PVPO NUMBER #200800130 FILING DATE FEBRUARY 25, 2008
6. FAX (include area code) 785-532-6563		9. DATE OF INCORPORATION	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) UNIVERSITY	8. IF INCORPORATED, GIVE STATE OF INCORPORATION		
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) VERNON A SCHAFER AGRONOMY DEPARTMENT KSU, 2004 THROCKMORTON HALL MANHATTAN, KS 66506			FILING AND EXAMINATION FEES: \$ 4,382.00 DATE 2/25/08 CERTIFICATION FEE: \$ 768.00 DATE 6/09/2008
11. TELEPHONE (include area code) 785-532-6115	12. FAX (include area code) 785-532-6094	13. E-MAIL VAS@KSU.EDU	
14. CROP KIND (Common Name) WHEAT	16. FAMILY NAME (Botanical) GRAMINEAE	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP TRITICUM AESTIVUM	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input type="checkbox"/> NO		
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit g. <input checked="" type="checkbox"/> Voucher Sample (3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) h. <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(e) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23) <input type="checkbox"/> UNDECIDED	
		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. See Page 2 <input checked="" type="checkbox"/> 1 FOUNDATION <input type="checkbox"/> 1 REGISTERED <input type="checkbox"/> 1 CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.) USA, Fall 2007		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER 	SIGNATURE OF OWNER
NAME (Please print or type) Forrest Chumley	NAME (Please print or type)
CAPACITY OR TITLE Assoc. Director, Ag Exp Sta	CAPACITY OR TITLE
DATE 2-5-08	DATE

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice). **NEW:** With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

Plant Variety Protection Office
Telephone: (301) 504-5518 FAX: (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: <http://www.ams.usda.gov/science/pvpo/PVPindex.htm>

SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, Seed Regulatory and Testing Branch, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870.
<http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

With owners approval, unlimited generations of Foundation and 2 generations of certified otherwise 1 generation ea. of Foundation, Registered & Certified

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Exhibit A Origin and Breeding History

Fuller is a hard red winter wheat selected from a population with the pedigree Ogallala/KS95WGRC33//Jagger. Ogallala (PV # 9300292) is a hard red winter wheat developed by AgriPro. KS95WGRC33 (PI 595379) is a hard red winter wheat germplasm release from USDA-ARS and Kansas State University and Jagger (PV #9500324) is a hard red winter wheat released by Kansas State University. The cross between Ogallala and KS95WGRC33 was made in the greenhouse in the Spring of 2005. That F1 was crossed as the female with Jagger as the male in the Fall of 2005. The resulting three-way F1 seed was grown in the greenhouse in the Spring of 2006 and the F2 seed plant planted in the field at Manhattan, KS in the Fall of 2006 for evaluation in the 1997 crop year. The population was selected for advancement and grown as an F3 bulk at Manhattan, KS and Hutchinson, KS in 1998. The bulk F4 seed was harvested from the the F3 plot at Manhattan, KS and again grown as a bulk population in the the F4 generation at Manhattan, KS and Hutchinson, KS in 1999. Two hundred individual spikes were pulled from the F4 population at Manhattan and grown as F4-derived F5 headrows at Manhattan, KS in the 2000 crop year. Superior rows were selected in the headrow nursery. The line that would become Fuller was assigned the selection number KS00F5-14-7 and entered in the "short-row" yield trial, a non-replicated test grown at Manhattan and Hutchinson, KS. Based on agronomic performance, disease resistance and quality attributes, it was advanced to the "Preliminary Yield Nursery," a two-rep test grown at Hutchinson and Manhattan in 2002. Again, due to superior agronomic, disease and quality traits, it was advanced to the 2003 Advanced Yield Nursery which was grown at six sites across Kansas (Manhattan, Hutchinson, Gypsum, Hays, Colby and Garden City). It's performance allowed advancement to the Kansas Intrastate Nursery, an elite test grown at 17 locations in Kansas in 2004, 2005 and 2006. This line was also tested in the Southern Regional Performance Nursery in 2006 and was released as 'Fuller' by the Kansas Agricultural Experiment Station in July of 2006.

Fuller is uniform. Variants are limited to taller plants that occur at a frequency of less than 1 in 10,000. White chaffed plants are also present at a frequency of less than 1 in 1,000. Plants with rounded shoulders and shorter beaks on the glumes were found in the initial increase, selection and roguing are being used to eliminate this off-type.

Fuller is stable. When sexually reproduced, the variety remains unchanged in its essential distinctive characteristics. Fuller was observed to be uniform and stable during the three generations prior to release.

Exhibit B. Statement of Distinctness

Of the currently grown cultivars, Fuller most closely resembles Jagger. Fuller differs from Jagger in that it is 3cm taller and is resistant to the leaf rust race MCDL, while Jagger is susceptible.

Fuller and Jagger can be easily distinguished from one another using microsatellite primers including GDM132, CFD152 and BARC358. The primer sequences and Graingenes database references are provided below.

GDM132

5' ACCGCTCGGAGAAAATCC 3'

5' AGGGGGGCAGAGGTAGG 3'

<http://wheat.pw.usda.gov/cgi-bin/graingenes/report.cgi?class=probe&name=GDM132>

CFD152

5' TGGAAGTCTGGAACCACTCC 3'

5' GCAACCAGACCACACTCTCA 3'

<http://wheat.pw.usda.gov/cgi-bin/graingenes/report.cgi?class=probe&name=CFD152>

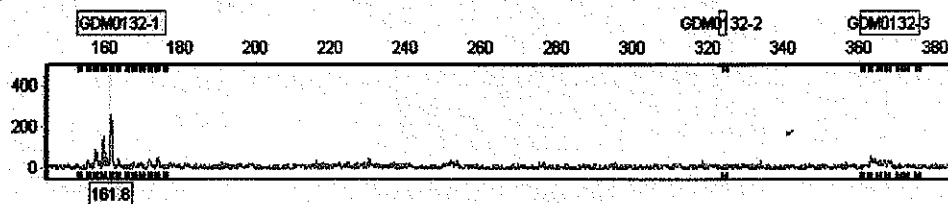
BARC358

5' TGC TAA TTG CCG ACT CAC TCC AG 3'

5' TGC ATA CCG CCT CGC TTC AT 3'

<http://wheat.pw.usda.gov/cgi-bin/graingenes/report.cgi?class=probe&name=BARC358>

Sample 84: KSF2007_024-G12-Jagger#BAR0128FAM,BAR0311VIC,CFA2153NED,GDM0132PET,StdPCR-Q2SSR_M24_042_0031.fsa



Sample 87: KSF2007_024-H03-KS00F5-14-7-1-1#BAR0128FAM,BAR0311VIC,CFA2153NED,GDM0132PET,StdPCR-Q2SSR_O06_009_0030.fsa

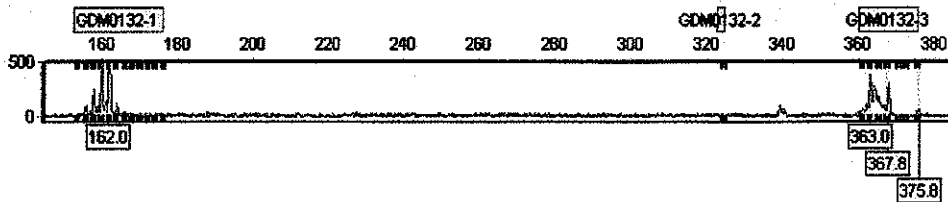
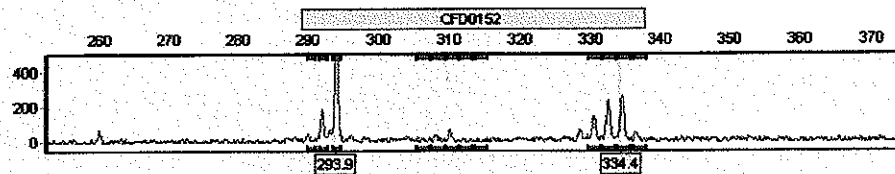


Figure 1. The chromatograms SSR marker GDM132 reveal a polymorphism with a 363 bp band present in Fuller (bottom) but absent in Jagger (top).

200800130

Sample 84: KSF2007_024-G12-Jagger#BAR0168FAM,BAR0324VIC,CFD0066NED,CFD0152PET,250Dntp-5-1-5P-Q2SSR_M23_042_0003.fsa



Sample 87: KSF2007_024-H03-KS00F5-14-7-1-1#BAR0168FAM,BAR0324VIC,CFD0066NED,CFD0152PET,250Dntp-5-1-5P-Q2SSR_O05_009_0002.fsa

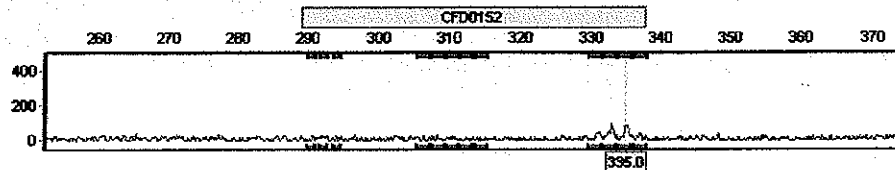
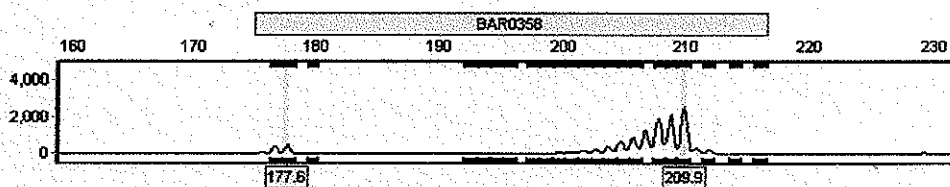


Figure 2. The chromatograms SSR marker CFD152 reveal a polymorphism with a 294 bp band present in Jagger (top) but absent in and Fuller (bottom).

Sample 84: KSF2007_024-G12-Jagger#BAR0052FAM,BAR0188VIC,BAR0358NED,CFD0062PET,StdPCR-Q2SSR_N24_042_0008.fsa



Sample 87: KSF2007_024-H03-KS00F5-14-7-1-1#BAR0052FAM,BAR0188VIC,BAR0358NED,CFD0062PET,StdPCR-Q2SSR_P06_009_0007.fsa

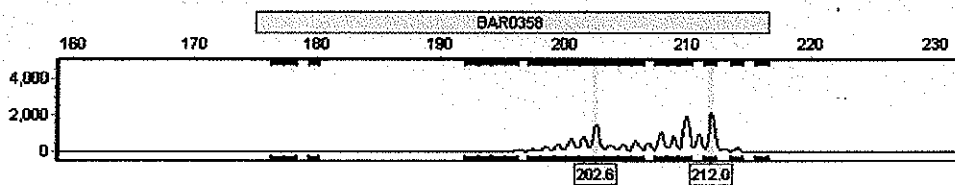


Figure 3. The chromatograms SSR marker BARC358 reveal a 178 bp band in Jagger (top) that is absent in Fuller (bottom). Fuller, in turn, has a 203 bp band that is missing in Jagger.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Wheat (*Triticum* spp.)

NAME OF APPLICANT (S) Kansas Agricultural Experiment Station	TEMPORARY OR EXPERIMENTAL DESIGNATION KS00F-14-7	VARIETY NAME Fuller
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) Waters Hall Kansas State University Manhattan KS 66506		FOR OFFICIAL USE ONLY PVPO NUMBER #2008000130

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____ . Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

- 1 = Common
2 = Durum
3 = Club
4 = Other (Specify) _____

2. VERNALIZATION:

- 1 = Spring
2 = Winter
3 = Other (Specify) _____

3. COLEOPTILE ANTHOCYANIN:

- 1 = Absent 2 = Present

4. JUVENILE PLANT GROWTH:

- 1 = Prostrate 2 = Semi-Erect 3 = Erect

5. PLANT COLOR: (boot stage)

- 1 = Yellow-Green
2 = Green
3 = Blue-Green

6. FLAG LEAF: (boot stage)

- 1 = Erect 2 = Recurved
1 = Not Twisted 2 = Twisted
1 = Wax Absent 2 = Wax Present

7. EAR EMERGENCE:

Number of Days (Average)

Number of Days Earlier Than *

Same As *

Number of Days Later Than *

* Jagger

*Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

8. ANTHR COLOR:

- 1 = Yellow 2 = Purple

6

#200800130

9. PLANT HEIGHT: (from soil to top of head, excluding awns)

cm (Average)

cm Taller Than

Jagger

Same As

cm Shorter Than

10. STEM:

A. ANTHOCYANIN

1 = Absent 2 = Present

B. WAXY BLOOM

1 = Absent 2 = Present

C. HAIRINESS (last internode of rachis)

1 = Absent 2 = Present

D. INTERNODE

1 = Hollow 2 = Semi-Solid 3 = Solid

Number of Nodes

E. PEDUNCLE

1 = Erect 2 = Recurved 3 = Semi-Erect

cm Length

F. AURICLE

Anthocyanin: 1 = Absent 2 = Present

Hair: 1 = Absent 2 = Present

11. HEAD: (At Maturity)

A. DENSITY

1 = Lax
2 = Middense (Laxidense)
3 = Dense

B. SHAPE

1 = Tapering
2 = Strap
3 = Clavate
4 = Other (Specify) _____

C. CURVATURE

1 = Erect
2 = Inclined
3 = Recurved

D. AWNEDNESS

1 = Awnless
2 = Apically Awnletted
3 = Awnletted
4 = Awned

12. GLUMES: (At Maturity)

A. COLOR

1 = White
2 = Tan
3 = Other (Specify) tan w/ brown line on the
outside edge

B. SHOULDER

1 = Wanting 2 = Oblique
3 = Rounded 4 = Square
5 = Elevated 6 = Apiculate
7 = Other (Specify) _____

C. SHOULDER WIDTH

1 = Narrow
2 = Medium
3 = Wide

D. BEAK

1 = Obtuse
2 = Acute
3 = Acuminate

E. BEAK WIDTH

1 = Narrow
2 = Medium
3 = Wide

F. GLUME LENGTH

1 = Short (ca. 7 mm)
2 = Medium (ca. 8 mm)
3 = Long (ca. 9 mm)

G. WIDTH

1 = Narrow (ca. 3 mm)
2 = Medium (ca. 3.5 mm)
3 = Wide (ca. 4 mm)

H. PUBESCENCE

1 = Not Present
2 = Present

13. SEED:

#200800130

A. SHAPE

- ☐ 1 = Ovate
☐ 2 = Oval
☐ 3 = Elliptical

B. CHEEK

- ☐ 1 = Rounded
☐ 2 = Angular

C. BRUSH

- ☐ 2 = Short
☐ 2 = Medium
☐ 3 = Long
- ☐ 1 = Not Collared
☐ 2 = Collared

D. CREASE

- ☐ 1 = Width 60% or less of Kernel
☐ 2 = Width 80% or less of Kernel
☐ 3 = Width Nearly as Wide as Kernel

- ☐ 2 = Depth 20% or less of Kernel
☐ 2 = Depth 35% or less of Kernel
☐ 3 = Depth 50% or less of Kernel

E. COLOR

- ☐ 3 = White
☐ 2 = Amber
☐ 3 = Red
☐ 4 = Other (Specify) _____

F. TEXTURE

- ☐ 1 = Hard
☐ 2 = Soft
☐ 3 = Other (Specify) _____

G. PHENOL REACTION (See Instructions)

- ☐ 4 = Ivory
☐ 2 = Fawn
☐ 3 = Light Brown
☐ 4 = Dark Brown
☐ 5 = Black

H. SEED WEIGHT

- ☐ 3 ☐ 2 g/1000 Seed (whole number only)

I. GERM SIZE

- ☐ 2 = Small
☐ 2 = Midsize
☐ 3 = Large

14. DISEASE: PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

(0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

- | | |
|---|---|
| <input type="checkbox"/> 1 Stem Rust (<i>Puccinia graminis</i> f. sp. <i>tritici</i>) | <input type="checkbox"/> 2 Leaf Rust (<i>Puccinia recondita</i> f. sp. <i>tritici</i>) |
| <input type="checkbox"/> 2 Stripe Rust (<i>Puccinia striiformis</i>) | <input type="checkbox"/> 3 Loose Smut (<i>Ustilago tritici</i>) |
| <input type="checkbox"/> 3 Tan Spot (<i>Pyrenophora tritici-repentis</i>) | <input type="checkbox"/> 0 Flag Smut (<i>Urocystis agropyri</i>) |
| <input type="checkbox"/> 0 Halo Spot (<i>Selenophoma donacis</i>) | <input type="checkbox"/> 0 Common Bunt (<i>Tilletia tritici</i> or <i>T. laevis</i>) |
| <input type="checkbox"/> 3 <i>Septoria nodorum</i> (Glume Blotch) | <input type="checkbox"/> 0 Dwarf Bunt (<i>Tilletia controversa</i>) |
| <input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease) | <input type="checkbox"/> 0 Karnal Bunt (<i>Tilletia indica</i>) |
| <input type="checkbox"/> 3 <i>Septoria tritici</i> (Speckled Leaf Blotch) | <input type="checkbox"/> 3 Powdery Mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>) |
| <input type="checkbox"/> 1 Scab (<i>Fusarium</i> spp.) | <input type="checkbox"/> 0 "Snow Molds" |
| <input type="checkbox"/> 2 "Black Point" (Kernel Smudge) | <input type="checkbox"/> 0 Common Root Rot (<i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input type="checkbox"/> 3 Barley Yellow Dwarf Virus (BYDV) | <input type="checkbox"/> 0 Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>) |
| <input type="checkbox"/> 2 Soilborne Mosaic Virus (SBMV) | <input type="checkbox"/> 0 Black Chaff (<i>Xanthomonas campestris</i> pv. <i>translucens</i>) |
| <input type="checkbox"/> 2 Wheat Yellow (Spindle Streak) Mosaic Virus | <input type="checkbox"/> 0 Bacterial Leaf Blight (<i>Pseudomonas syringae</i> pv. <i>syringae</i>) |
| <input type="checkbox"/> 1 Wheat Streak Mosaic Virus (WSMV) | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Other (Specify) _____ | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Other (Specify) _____ | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Other (Specify) _____ | <input type="checkbox"/> Other (Specify) _____ |

15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- | | |
|--|--|
| <input type="checkbox"/> 1 Hessian Fly (<i>Mayetiola destructor</i>) | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Stem Sawfly (<i>Cephus</i> spp.) | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Cereal Leaf Beetle (<i>Oulema melanopa</i>) | <input type="checkbox"/> Other (Specify) _____ |

8

15. INSECT: (continued) (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (Where Needed)

<input checked="checked" type="checkbox"/> 1	Russian Aphid (<i>Diuraphis noxia</i>)	<input type="checkbox"/>	Other (Specify) _____
<input checked="checked" type="checkbox"/> 1	Greenbug (<i>Schizaphis graminum</i>)	<input type="checkbox"/>	Other (Specify) _____
<input type="checkbox"/> 0	Aphids	<input type="checkbox"/>	Other (Specify) _____

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

Exhibit D (continued).

VARIETY ID	SKCS DATA				MIXOGRAPH			BAKE DATA					
	flour yield	avg. weight	avg. dia	avg. hard	fl pro	mixo abs %	mixo peak min	bake abs %	bake mix time	dough props	loaf vol	crumb grain score	crumb color
2005 Central Kansas Composite													
Jagger	67.1	27.8	2.2	68.9	12.7	60.5	4.2	60.5	3.9	VSB	945	3.0	SC
2137	67.8	26.9	2.3	64.9	12.8	64.4	4.0	60.5	3.9	SB	980	3.0	SC
Overley	70.6	35.8	2.6	59.0	13.2	62.4	5.0	62.4	4.5	SB	1004	2.5	SC
Fuller	67.2	32.9	2.5	58.6	12.6	62.2	4.6	62.7	4.7	SB	935	3.0	SC
2004 (HE=Hesston, CW=Caldwell, K=Hutchinson)													
Jagger-HE	69.1	26.6	2.1	64.8	14.6	63.0	4.7	63.5	4.9	SB	1070	3.0	SC
Fuller-HE	69.6	28.4	2.3	49.3	13.4	61.0	6.1	61.0	7.0	B	980	3.0	W
JAGGER-CW	66.3	23.9	2.0	67.9	11.4	61.0	3.6	59.0	3.5	SB	880	2.5	C
Fuller-CW	67.7	27.9	2.2	53.8	11.3	59.5	5.3	57.9	4.7	B	895	2.5	SC
JAGGER-K	71.0	25.7	2.1	66.1	14.2	67.0	4.7	65.0	5.4	B	1105	3.5	SC
Fuller-K	70.8	30.6	2.4	52.4	13.8	66.0	5.5	64.0	6.4	B	1050	3.5	SC
2003-Central Kansas Composite													
Jagger	70.1	28.5	2.3	70.0	10.1	58.6	3.6	61.2	3.3	SB	935	3.5	C
Fuller	70.4	34.0	2.5	69.9	10.9	59.9	4.3	60.9	5.1	VB	925	3.5	C

Dough props, SB= slightly bucky; b=bucky; vb=very bucky

Crumb color, SC=slightly creamy; c=creamy;

w=white

Table 3. Quality data comparing Jagger and Fuller in central Kansas from 2003-2005.

200800130

KS00F5-14-7 Yield Data

06VPT DRYLAND	EV	M	OT	PR	BE	BL	HE	K	H	LD	GCD	TR	C/E AVG	W AVG	KS AVG
Jagger	76	49	55	41	106	70	54	58	44	9	22	42	63.6	29.3	52.2
Overley	71	59	57	47	114	75	52	56	45	12	19	35	66.4	27.8	53.5
Jagalene	78	58	62	45	114	77	52	52	43	19	23	41	67.3	31.5	55.3
Fuller	83	56	57	43	114	75	58	54	43	15	23	41	67.5	30.5	55.2
Postrock	78	52	56	44	107	69	51	49	44	9	25	40	63.3	29.5	52.0

	04KIN			05KIN			06KIN			3 Year KIN Avg			06VPT		
	C/E AVG	W AVG	KS AVG	C/E AVG	W AVG	KS AVG	C/E AVG	W AVG	KS AVG	3 yr C/E	3 yr W	C/E AVG	W AVG	KS AVG	
Jagger	44.1	47.2	47.3	53.4	59.6	57.1	56.8	41.7	49.3	53.8	49.9	63.6	29.3	52.2	
Overley	45.6	53.6	51.7	64.1	58.8	60.9	53.9	36.0	46.0	57.2	51.2	66.4	27.8	53.5	
Jagalene	49.0	53.1	52.6	48.5	54.5	52.1	55.4	34.3	44.8	55.2	48.1	67.3	31.5	55.3	
Fuller	47.4	52.2	51.5	62.5	64.5	63.7	54.8	36.7	45.8	57.5	52.0	67.5	30.5	55.2	

4200900130

	GDM0132PET
	GDM0132-3
Entry	363 bp
Jagger	0
Fuller	378

	CFD0152PET
	CFD0152
Entry	294bp
Jagger	536
Fuller	0

	BAR0358NED	BAR0358NED
	BAR0358	BAR0358
	178bp	203bp
Jagger	502	0
Fuller	0	1508

Numbers represent peak height at the give fragment size. Data was generated by the USDA-ARS genotyping facility, Manhattan, KS.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) MAH 4/14/08 Kansas Agricultural Experiment KS AG EXPT STATION KANSAS STATE UNIVERSITY RESEARCH FOUNDATION LAW 6/23/08	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER KS00F5-14-7	3. VARIETY NAME Fuller
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) Waters Hall Kansas State University Manhattan, KS 66506	5. TELEPHONE (include area code) 785-532-6147	6. FAX (include area code) 785-532-6563
7. PVPO NUMBER #2008000130		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.



YES



NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.



YES



NO

10. Is the applicant the original owner?



YES



NO

If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?



YES



NO

If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?



YES



NO

If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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**U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705**

**EXHIBIT F
DECLARATION REGARDING DEPOSIT**

NAME OF OWNER (S) Kansas Agricultural Experiment Station KANSAS STATE UNIVERSITY RESEARCH FOUNDATION	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Waters Hall Kansas State University Manhattan, KS 66506	TEMPORARY OR EXPERIMENTAL DESIGNATION KS00F-14-7 VARIETY NAME Fuller
NAME OF OWNER REPRESENTATIVE (S) Vernon A. Schaffer	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 2004 Throckmorton Hall KSU Agronomy Dept. Manhattan, KS 66506	<div style="background-color: #cccccc; padding: 5px;">FOR OFFICIAL USE ONLY</div> PVPO NUMBER 4200000130

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

RAG
Signature

2-5-08
Date